ARGOSystems

EMI Lab

DESCRIPTION AND USE OF THE EMCO DOUBLE RIDGED GUIDE ANTENNA MODEL 3106

Serial Number: 2268

ARGOSystems, Inc./ 310 N. Mary Avenue / P.O. Box 3452, Sunnyvale, California 94088-3452 / (408) 737-2000 / Telex 352077

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Serial Number: 2268

WARRANTY

This Model 3106 Double Ridged Guide Antenna, Serial No.2268 , is warranted for a period of one year from date of shipment against defective materials and workmanship. This warranty is limited to the repair or replacement of defective parts and is void if unauthorized repair or modification is attempted. Repairs for damage due to misuse or abnormal operating conditions will be performed at the factory and will be billed at our commercial hourly rates. Our estimate will be provided before the work is started.

DESCRIPTION AND USE OF THE EMCO DOUBLE RIDGED GUIDE ANTENNA

Model 3106

The EMCO Model 3106 Double Ridged Guide Antenna is a linearly polarized broadband antenna covering the frequency range of 200 MHz to 2.0 GHz. The Model 3106, built in accordance with ECOM Drawings DL-ES-A-217563, was designed specifically for EMI measurements and specification compliance testing.

The antenna is precision machined from aluminum. The 50 ohm, type N connector is mounted on the base block of the antenna. A bracket is provided for standard tripod mounting.

To mount the antenna on the tripod, attach the antenna to the tripod with a 1/4-20 bolt.

Each Model 3106 Double Ridged Guide Antenna is individually calibrated during the manufacturing process. VSWR is checked for conformance to the typical characteristic shown in Fig. 1. Apparent gain at 1.0 meter from the end of the antenna is determined and used to check conformance to the antenna factor. This factor should be used in specification compliance testing to convert receiver reading (dBμV) to field intensity units (dBμV/M). The conversion is accomplished by adding the antenna factor in dB to the receiver reading in dB above 1 microvolt.

The gain data shown was determined from measurements with two identical antennas spaced 1.0 meter apart.

Relative radiation patterns are determined on each Model 3106 Antenna at 200 MHz, 500 MHz, 1.0 GHz and 2.0 GHz. The patterns, for both horizontal and vertical polarization, are shown in Fig. 2 through Fig. 9.

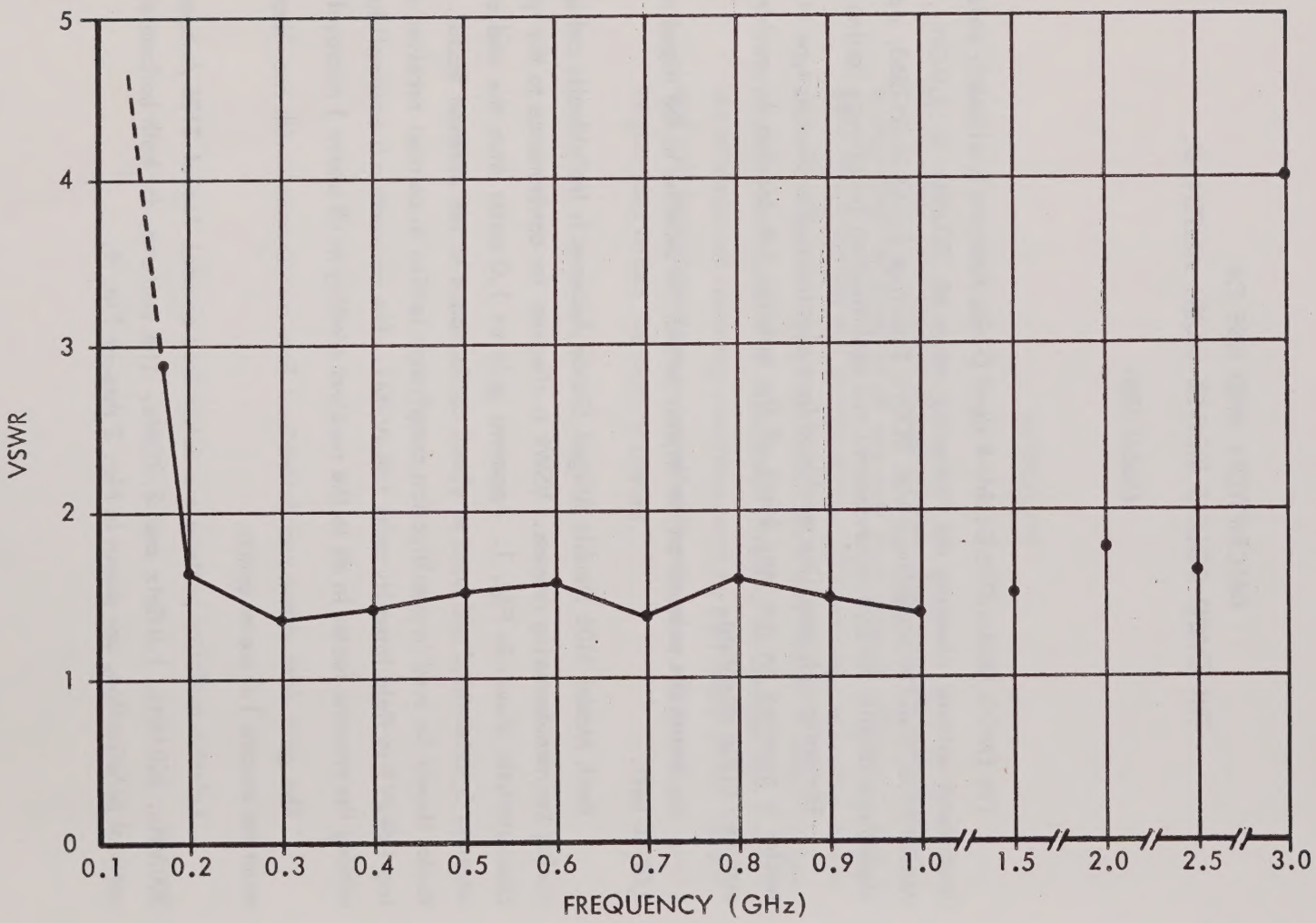

Fig. 1 Typical VSWR vs Frequency for the EMCO Model 3106 Double Ridged Guide Antenna

APPROXIMATE POWER REQUIREMENTS VS FREQUENCY

FOR FIELD STRENGTHS AT 1 METER SPACING

EMCO MODEL 3106 Double Rideged Guide Antenna

(Maximum Power 800 Watts)

FREQ. (MHZ)	*ANT. FACT.*	*TYP. GAIN*	*FIELD STRENGTH*						5
			1 V/M	*10 V/M*	*20 V/M*	*50 V/M*	*100 V/M*	*200 V/M*	
200	11.5	2.99	.100 W	1.115W	4.459W	27.871W	111.483W	445.931 W	
300	12.5	5.03	.007	.663	2.651	16.567	66.269	265.076	0.
400	13.5	7.62	.004	.437	1.750	10.936	43.745	174.978	0.
500	16.5	5.98	.006	.557	2.230	13.935	55.741	222.965	0.
600	17.9	6.28	.005	.531	2.123	13.270	53.079	212.314	0.
700	18.3	7.71	.004	.432	1.729	10.808	43.234	172.936	0.
800	18.3	8.38	.004	.398	1.591	9.944	39.777	159.109	0.
900	19.1	8.39	.004	.397	1.589	9.932	39.730	158.919	0.
1000	4.71	4.71	.007	.708	2.831	17.693	70.771	283.086	0.
1500	25.3	7.06	.005	.472	1.889	11.804	47.214	188.857	0.
2000	32.0	2.65	.013	1.258	5.031	31.447	125.786	503.145	0.

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GAIN AND ANTENNA FACTORS
MODEL 3106
DOUBLE RIDGED GUIDE
S/N 2268

1 METER CALIBRATION

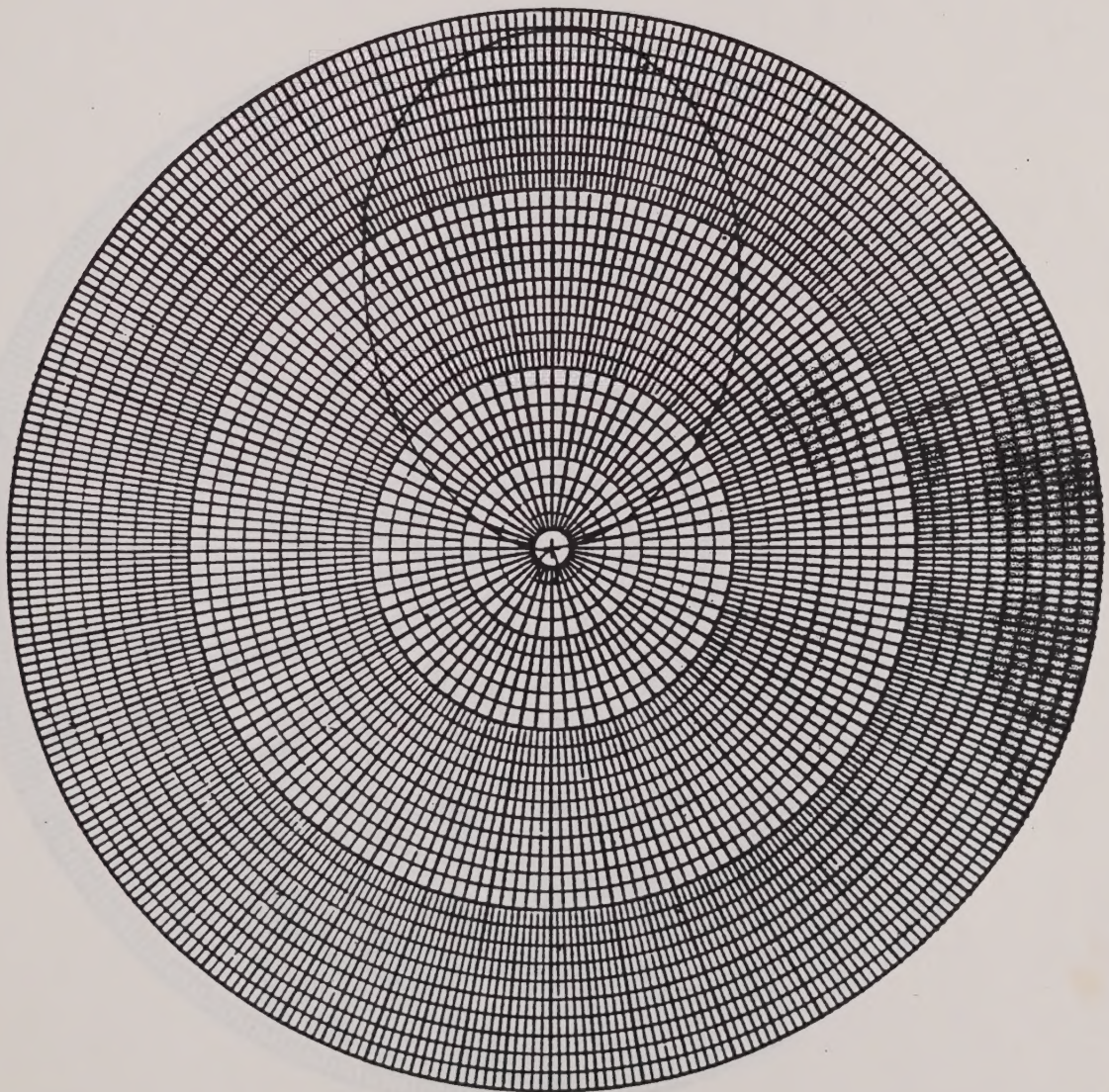
FREQUENCY (MHZ)	ANTENNA FACTOR (dB)	GAIN NUMERIC	GAIN dBi
200	10.76	3.533	5.5
300	12.67	5.119	7.1
400	13.52	7.484	8.7
500	16.64	5.702	7.6
600	17.88	6.169	7.9
700	17.85	8.456	9.3
800	18.78	8.916	9.5
900	20.19	8.153	9.1
1000	23.10	5.153	7.1
1100	22.71	6.815	8.3
1200	22.69	8.152	9.1
1300	23.94	7.179	8.6
1400	24.41	7.468	8.7
1500	25.91	6.070	7.8
1600	24.89	8.734	9.4
1700	25.60	8.366	9.2
1800	25.15	10.408	10.2
1900	26.79	7.959	9.0
2000	31.96	2.680	4.3

SPECIFICATION COMPLIANCE TESTING FACTOR (1 METER SPACING)
TO BE ADDED TO RECEIVER METER READING IN dBuV TO CONVERT TO
FIELD INTENSITY IN dBuV/METER.

THE ELECTRO-MECHANICS CO.
Model 3106

Frequency: 200 MHz S/N 2268 **Polarization:** Vertical

Antenna Axis: Parallel to Ground



Date: 1/30/86 **Initials:** FRU

Fig. Antenna Radiation Pattern

THE ELECTRO-MECHANICS CO.
Model 3106

Frequency: 200 MHz S/N 2268 **Polarization:** Horizontal

Antenna Axis: Parallel to Ground

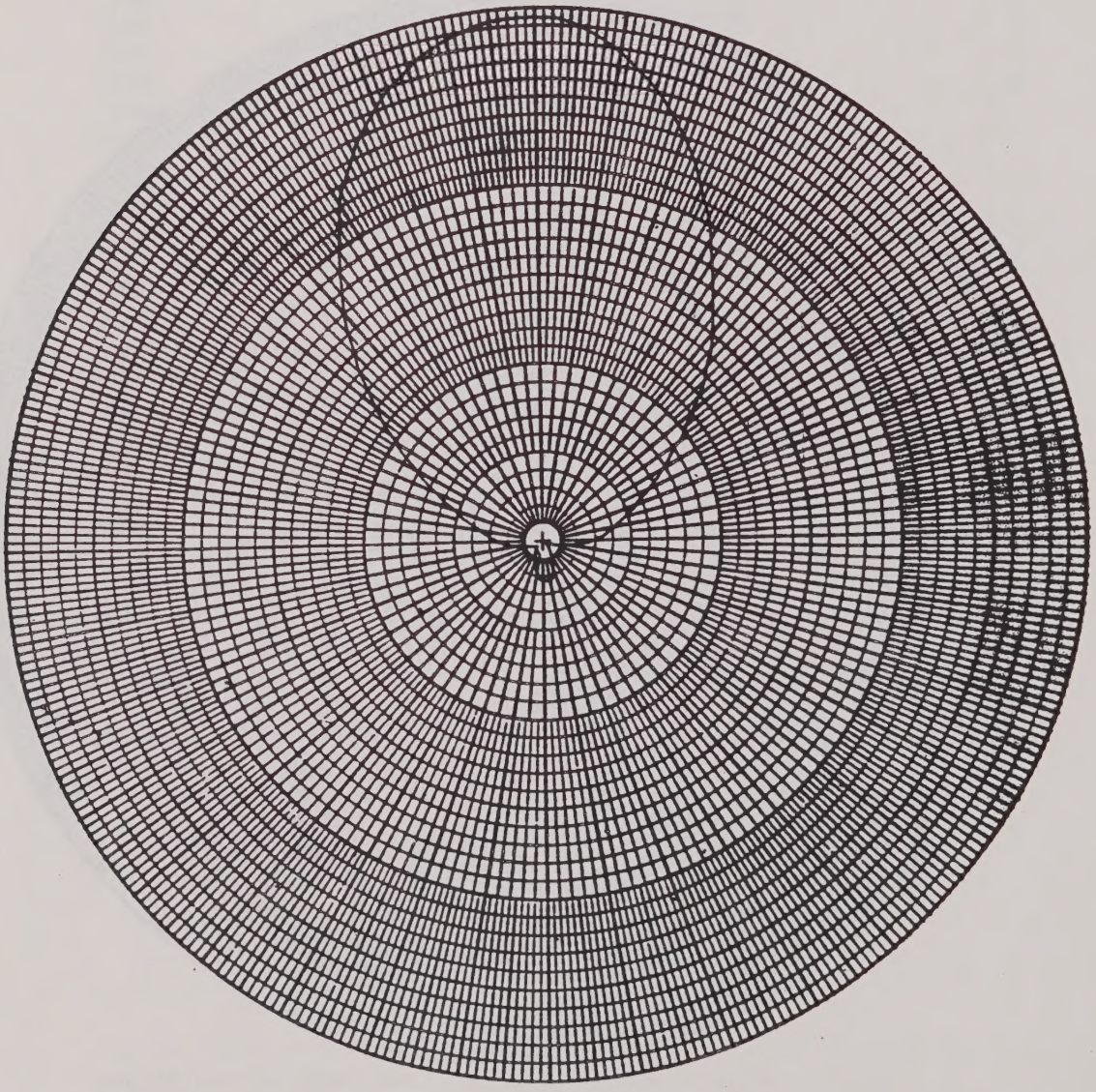


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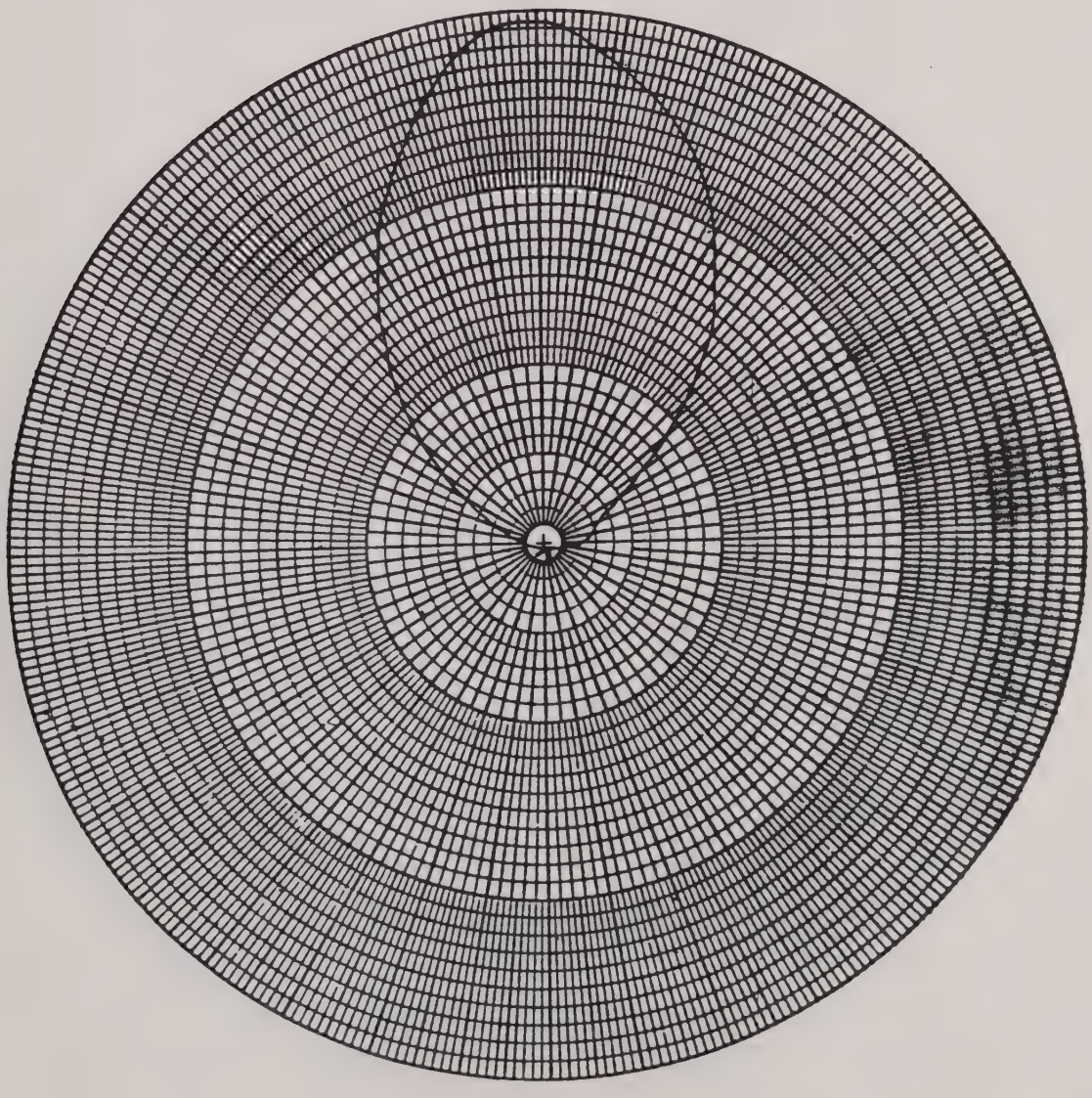
Fig. **Antenna Radiation Pattern**

THE ELECTRO-MECHANICS CO.,
Model 3106

Frequency: 500 MHz S/N 2268 **Polarization:** Vertical

Antenna Axis: Parallel to Ground



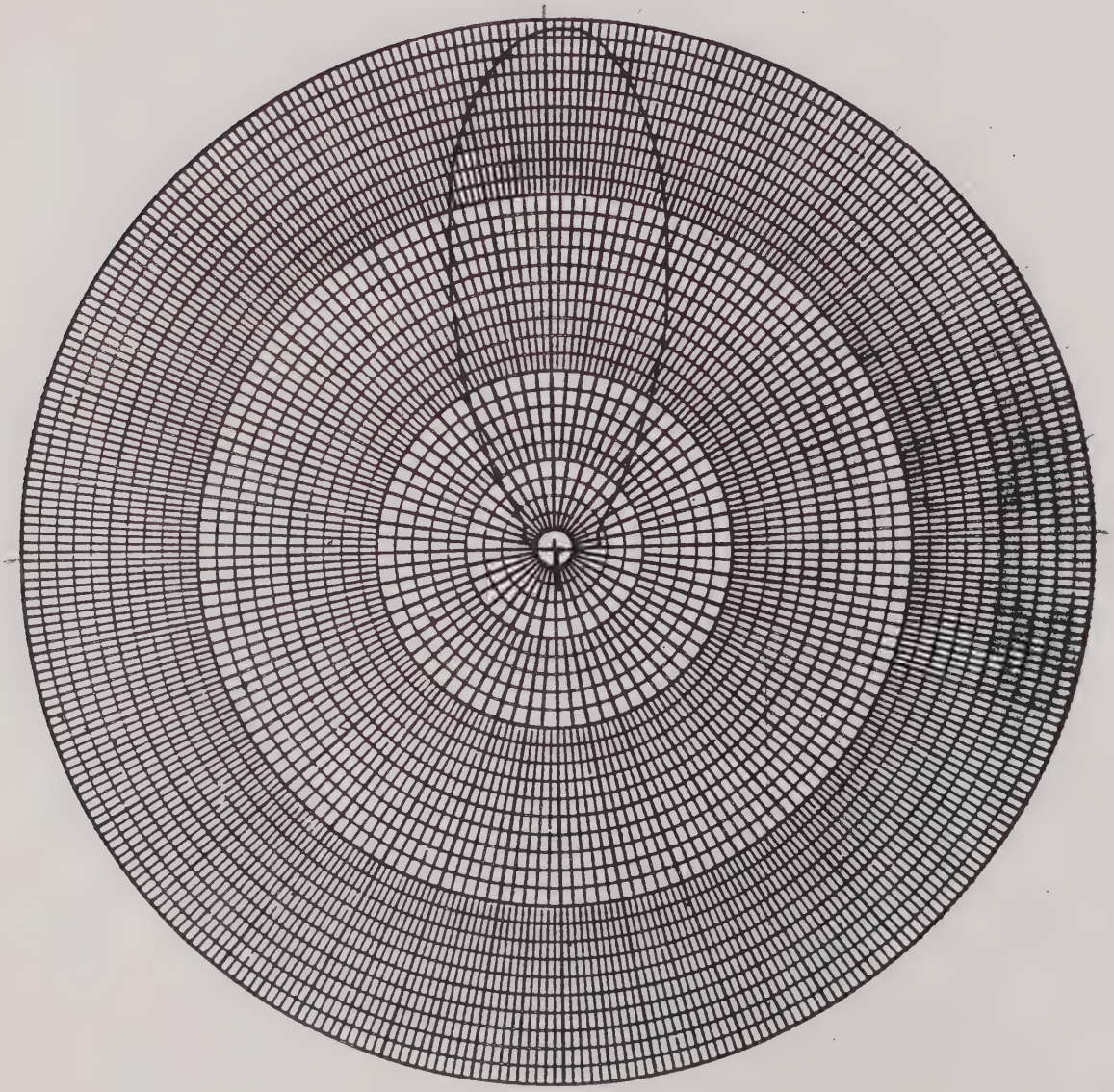
Date: 1/30/86 **Initials:** FRU

Fig. **Antenna Radiation Pattern**

THE ELECTRO-MECHANICS CO.
Model 3106

Frequency: 500 MHz S/N 2268 **Polarization:** Horizontal

Antenna Axis: Parallel to Ground



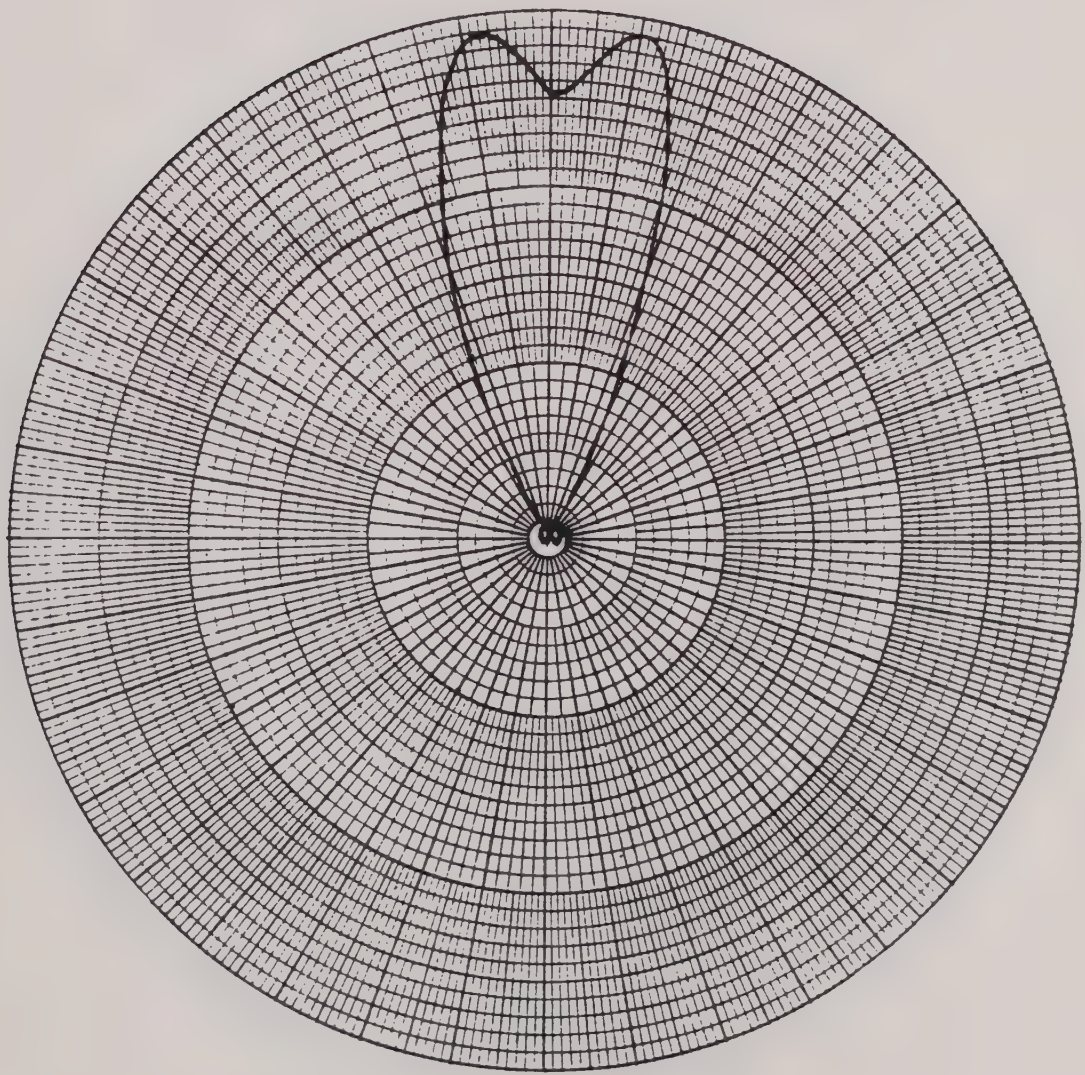
Date: 1/30/86 **Initials:** FRU

Fig. Antenna Radiation Pattern

THE ELECTRO-MECHANICS CO.
Model 3106

Frequency: 1000 MHz S/N 2268 Polarization: Vertical

Antenna Axis: Parallel to Ground



Date: 1/30/86 Initials: FRU

Fig. Antenna Radiation Pattern

THE ELECTRO MECHANICS CO.
Model 3106

Frequency: 1000 MHz S/N 2268 **Polarization:** Horizontal

Antenna Axis: Parallel to Ground

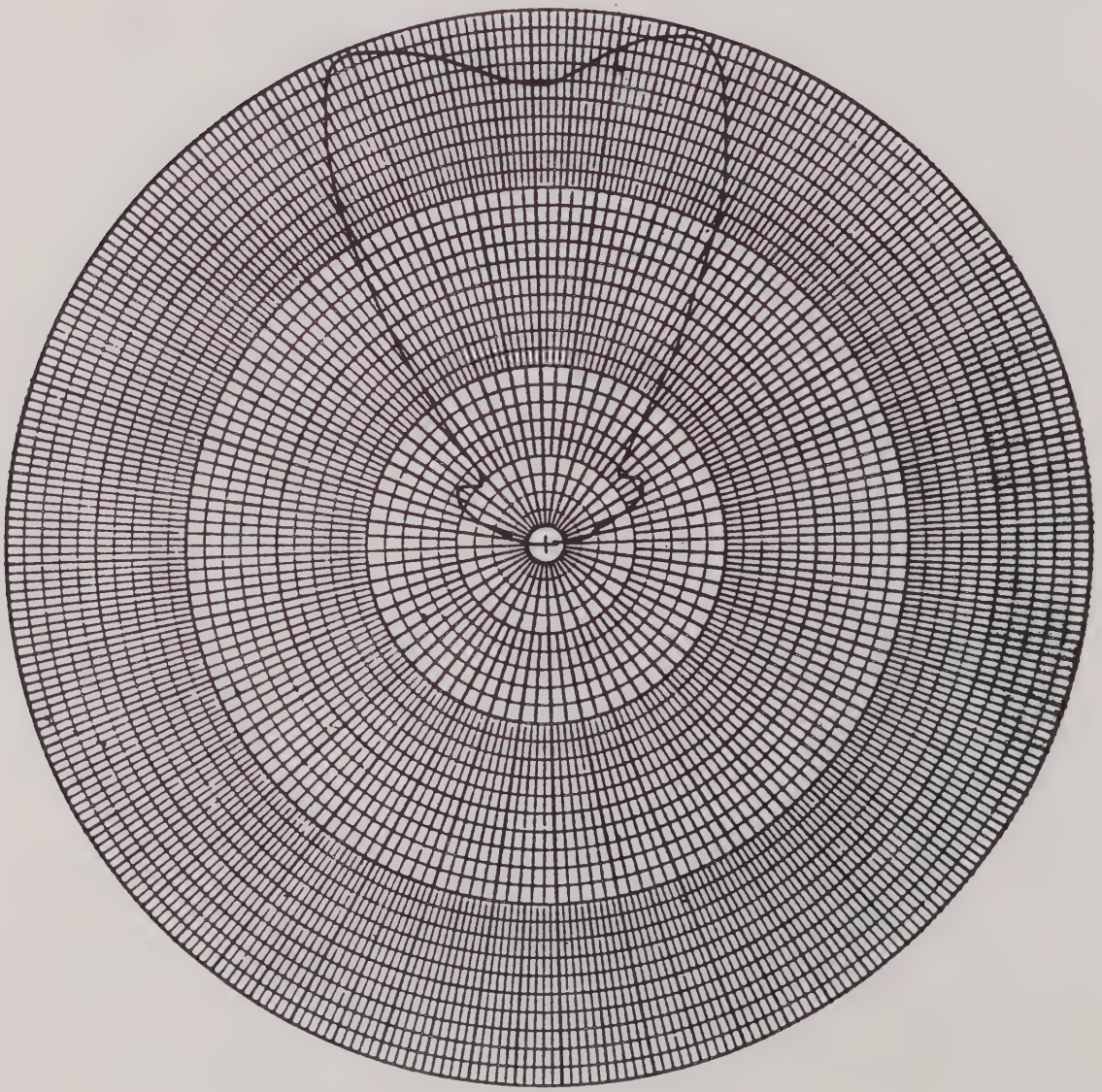


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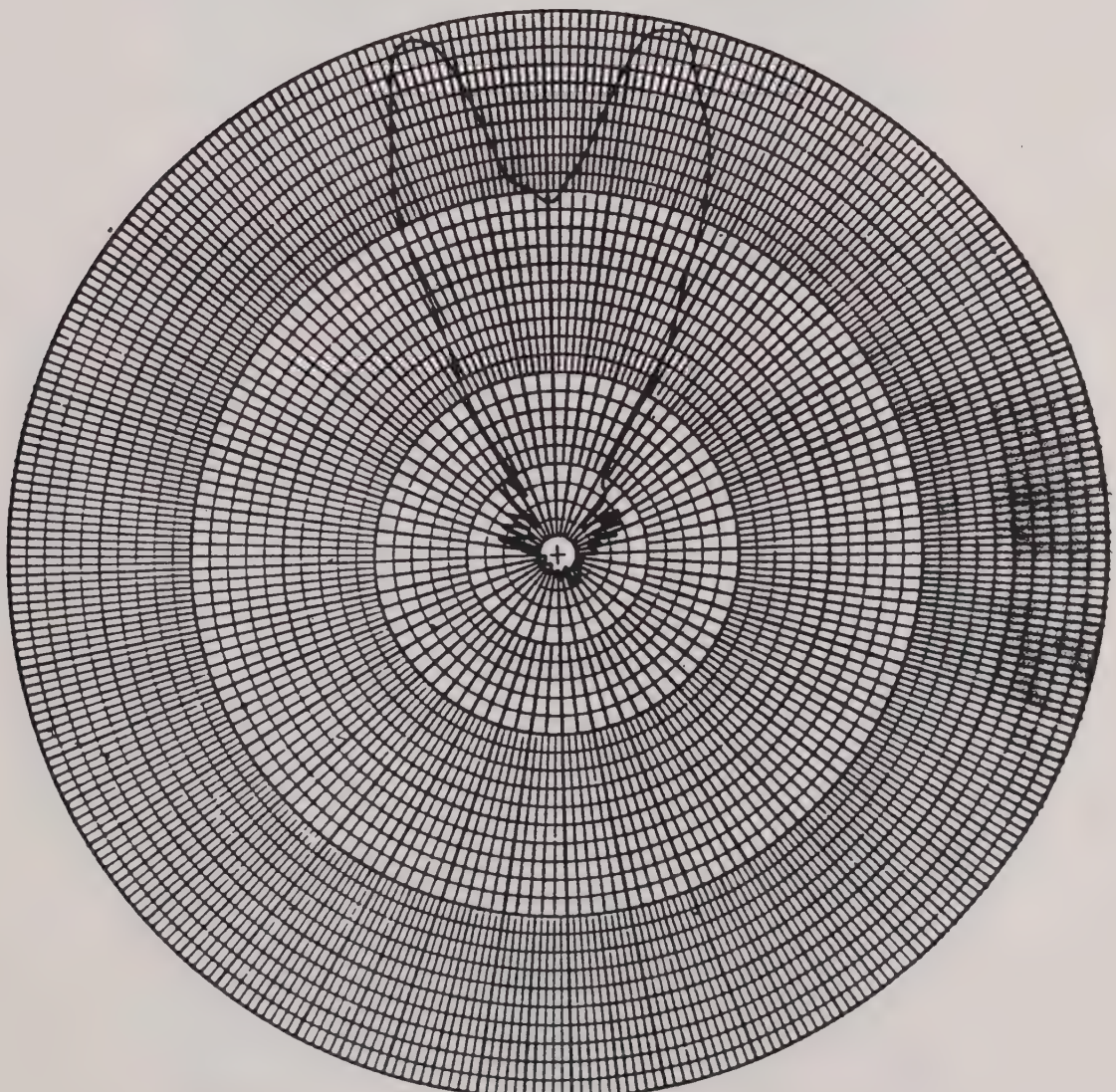
Fig. Antenna Radiation Pattern

THE ELECTRO-MECHANICS CO.
Model 3106

Frequency: 2000 MHz S/N 2268 **Polarization:** Vertical

Antenna Axis: Parallel to Ground



Initials: FRU

Date: 1/30/86

Fig. Antenna Radiation Pattern

THE ELECTRO-MECHANICS CO.
Model 3106

Frequency: 2000 MHz S/N 2268 **Polarization:** Horizontal

Antenna Axis: Parallel to Ground

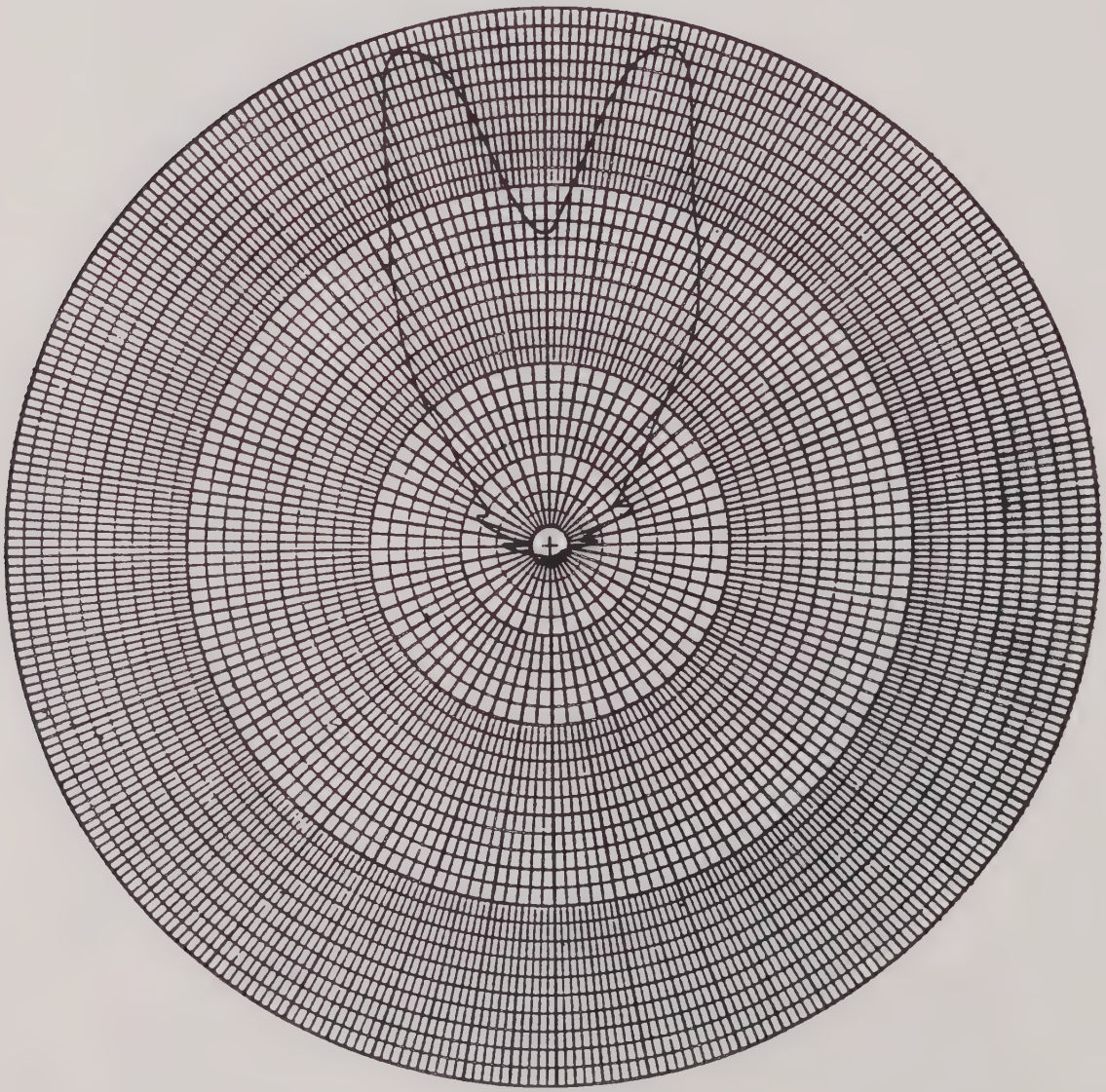


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Fig. Antenna Radiation Pattern

The Electro-Mechanics Company is committed to providing quality Products and Service to satisfy our customer's expectations. Your feedback is a vital part of our ongoing pursuit of excellence in Quality Control, Customer Service and Marketing Communications.

Your comments, on the form below, will help us to identify potential problems so that corrective action can be taken to prevent recurrence. Please take a few moments to fill out this card and return it (Postage paid) to us.

Model No. _____ Serial No. _____ Purchase Date _____

Name _____ Title _____

Company _____ Telephone ( ) _____

Address _____

City _____ State _____ Zip _____

QUALITY CONTROL

Yes	No	
☐	☐	Was the package damaged externally?
☐	☐	Was shipment complete? __ Correct Model __ Correct Manual __ All Access.
☐	☐	Does unit have visible signs of damage? If yes, explain: _____
☐	☐	Does unit have visible signs of defects or poor workmanship? If yes, explain:

_____

_____

CUSTOMER SERVICE

Yes	No	
☐	☐	Did you receive all the technical information you requested prior to purchase and did the data help you to decide to buy? If not, explain: _____
☐	☐	Were you treated courteously by our customer service or technical personnel? If not, explain: _____
☐	☐	Was the unit delivered in the time frame promised and/or were you notified of a change?

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Please check ONE BOX in each column

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☐ Magazine Ad	☐ Automotive Test (SAE)	☐ Conducted Immunity
☐ Referral	☐ EMI/RFI General Test	☐ TEMTEST
☐ Previous Experience	☐ Other _____	☐ ESD _____
☐ Other _____		☐ Other _____

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